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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

HUNNINGS, TRAVIS R

ART UNIT PAPER NUMBER

2632

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/713,526

Applicant(s)

KATOU, MICHIIYA

Examiner

Travis R. Hunnings

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-6 and 8-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-6 and 8-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1, 6, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over McClelland et al. (McClelland; US Patent 6,710,708).

Regarding claim 1, McClelland discloses *Method And Apparatus For A Remote Tire Pressure Monitoring System* that has the following claimed subject matters:

The claimed transponder for a tire condition monitoring apparatus that detects condition of a tire and wirelessly transmits data representing the detected condition in response to radio waves having a field intensity equal to or greater than a predetermined level is met by the tire monitors in each tire of the vehicle including a switch which is activated by detection of a relatively low frequency signal transmitted from a nearby exciter and in response to the detected signal, the detector transmits tire characteristic data including identification information (column 1, lines 53-65). It is inherent that the low frequency signal transmitted from a nearby exciter must have a field intensity equal to or greater than a predetermined level in order for the tire monitor to be able to detect the signal;

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The claimed transponder being provided in a tire valve attached to a wheel upon which the tire is mounted such that the transponder is embedded in the tire is met by the tire monitor being fabricated to include the tire valve stem as seen in figure 2(column 3, lines 27-32);

The claimed condition detecting device for detecting a condition of the tire is met by the sensor detecting the pressure of the tire (column 3, lines 36-45);

The claimed coil antenna which is induced by radio waves having a field intensity equal to or greater than a predetermined level to generate electricity is met by the tire monitor having a receiver circuit that has a tuned inductor coil that resonates in response to an activation signal from an exciter that also is used to power the tire monitor (col4 2-16). The claimed limitation of a "coil antenna" is interpreted as a coil of wire that is used to transmit and receive signals;

The claimed casing having an accommodating portion that accommodates the coil antenna and a projecting portion projecting into the tire from the accommodating portion, the projection portion accommodating the condition detecting device is met by the housing containing all the elements of the tire monitor including the coil antenna and sensor and being mounted in a tire valve that extends into the interior of the tire as seen in figure 2(column 3, lines 27-43);

The claimed transponder wherein based on the electricity induced by the coil antenna the transponder detects condition of the tire with the condition detecting device and wirelessly transmits data representing the detected condition is met by the

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transponder transmitting data to the receiving unit of the vehicle after being activated (column 3, lines 59-61 and column 4, lines 31-61).

Regarding claim 6, McClelland discloses all of the claimed limitations:

The claimed apparatus for monitoring condition of tires of a vehicle comprising a transmitter-receiver that transmits radio waves having a field intensity equal to or greater than a predetermined level at a predetermined timing is met by the controller and plurality of exciters (column 7, lines 45-67 and column 8, lines 1-3);

The claimed transmitting at a predetermined timing would have been obvious when the exciter is automatically controlled, thereby permitting automatic tire pressure monitoring (column 1, lines 53-65);

The claimed transponders wherein each transponder is provided in one of the tires is met by the plurality of tire monitors each being provided in a tire of the vehicle (column 7, lines 45-54);

The claimed transponders each including a pressure sensor for measuring the air pressure of the corresponding tire is met by each tire monitor having a sensor that provides data indicative of a tire characteristic that is a pressure sensor (column 7, lines 45-54 and column 3, lines 44-47);

The claimed transponders each having a coil antenna, wherein, when receiving the radio waves the coil antenna induces electricity for activating the pressure sensor, and transmits the air pressure data measured by the pressure sensor is met by the tire monitor having a tuned inductor coil (column 4, lines 2-16) that receives the low

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frequency signal, using that signal to power the circuit then transmitting the tire monitor information using a high frequency signal (column 4, lines 50-61). The claimed limitation of a "coil antenna" is interpreted as a coil of wire that is used to transmit and receive signals;

The claimed casing having an accommodating portion that accommodates the coil antenna and a projecting portion projecting into the tire from the accommodating portion, the projection portion accommodating the condition detecting device is met by the housing containing all the elements of the tire monitor including the coil antenna and sensor and being mounted in a tire valve that extends into the interior of the tire as seen in figure 2(column 3, lines 27-43);

The claimed transponder wherein based on the electricity induced by the coil antenna the transponder detects condition of the tire with the condition detecting device and wirelessly transmits data representing the detected condition is met by the transponder transmitting data to the receiving unit of the vehicle after being activated (column 3, lines 59-61 and column 4, lines 31-61).

Regarding claim 10, the claimed condition detecting device is a pressure sensor wherein the projecting portion has a hole through which the pressure sensor measures air pressure in the tire is met by the sensor being a pressure sensor (column 3, lines 44-48) and the sensor being mounted in the valve stem of the tire valve (column 3, lines 36-45).

Regarding claim 12, the claim is interpreted and rejected as claim 10 stated above.

3. Claims 4, 5, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over McClelland in view of Senba et al. (Senba; US Patent Publication 2003/0179151).

Regarding claim 4, McClelland discloses all of the claimed limitations except for the claimed pair of annular magnetic plates wherein the magnetic plates are each provided on one of an outer circumference and an inner circumference of the coil antenna, respectively. Senba discloses *Communication Device, Installation Structure For The Communication Device, Method Of Manufacturing The Communication Device, And Method Of Communication With The Communication Device* that teaches arranging sheet-like magnetic material around both sides of a coil antenna (paragraph 43). Adding the sheet-like magnetic material around the sides of a coil antenna would restrain attenuation of magnetic flux for communication with the coil antenna (paragraph 44). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by McClelland according to the teachings of Senba to add a pair of annular magnetic plates to the coil antenna.

Regarding claim 5, McClelland discloses all of the claimed limitations except for the claimed pair of annular magnetic plates, wherein the magnetic plates are each provided on one of axial end faces of the coil antenna, respectively. Senba teaches an

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antenna coil that is arranged between two sheet-like magnetic materials (paragraph 53). Placing sheet-like magnetic materials on top and bottom of the antenna coil in order to increase communication distance (paragraphs 54 and 55). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by McClelland according to the teachings of Senba to add a pair of annular magnetic plates placed on axial end faces of the coil antenna.

Regarding claim 8, the claim is interpreted and rejected as claim 4 stated above.

Regarding claim 9, the claim is interpreted and rejected as claim 5 stated above.

4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over McClelland in view of Mangafas et al. (Mangafas; US Patent 5,987,980).

Regarding claim 11, McClelland discloses all of the claimed limitations except for the claimed projecting portion extends parallel to an axis of the coil antenna. Mangafas discloses *In Situ Tire Valve Assembly Employing Short Valve Element As Antenna* that teaches a tire pressure sensor with a coil antenna wrapped around the sensing element and the device being installed in a valve stem of a tire valve that projects into the interior of the tire as seen in figures 1 and 3 (abstract). Modifying the antenna of McClelland to wrap around the pressure sensor would decrease the overall size of the device and allow it to be installed in valve stems of a wider variety of sizes. Therefore it would have

been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by McClelland according to the teachings of Mangafas to wrap the coil antenna around the sensor so that the projecting device extends parallel to the axis of the coil antenna.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Travis R. Hunnings whose telephone number is (571) 272-3118. The examiner can normally be reached on 8:00 am - 5:00 pm M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel J. Wu can be reached on (571) 272-2964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TRH


DANIEL WU
SUPERVISORY PATENT EXAMINER
09/05/05